Photodiode Integrated Superprism Demultiplexer Based on GaInAsP/InP

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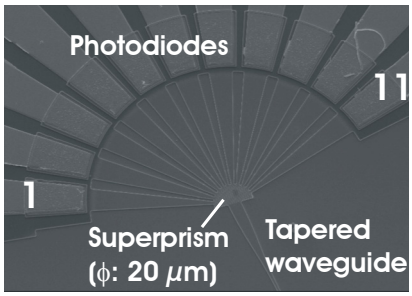
One of the key functions in WDM (Wavelength Division Multiplexing) systems is wavelength monitoring. We fabricated and analyzed a compact superprism based wavelength monitor for e.g. Coarse WDM (CWDM) channel allocations in the 1.5 µm spectral window. The superprism arrangement is according to [1]. Integrated photodiodes result in a small footprint and simple packaging as only a single waveguide interface is required. A photonic crystal triangular lattice pattern was formed (CAIBE etched [2]) within a semicircular area forming the demultiplexer (cf. figure) as in [1]. For the realised device the superprism effect is observed for 1.4…1.6 µm.



[1] L. Wu, M. Mazilu, T. Karle, and T.F. Krauss, IEEE J. Quantum Electronics, Vol. 38, No. 7, pp. 915-918, 2002.
[2] S. Golka, K. Janiak, H.-J. Hensel, H. Heidrich, E. Schwoob; H. Benisty, 15th Indium Phosphide and Related Materials Conf. (IPRM), 12.-16.05.2003, San José (USA).